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CHAPTER REPORTS

THE NORTHWESTERN CHAPTER

During the past year the Northwestern Chapter has held the following meetings with speakers and topics indicated:

October 23; Professor J. H. Long, The Physiological Significance of Certain Substances Used for the Preservation of Foods.

November 20; Professor Philip Fox, Investigation of the 18½ inch Objective of the Dearborn Observatory Telescope.

December 18; Professor U. S. Grant, Methods of Work in the U. S. Geological Survey.

January 15; Professor A. I. Kendall, The Relation of Bacterial Metabolism to the Production of Bacterial Toxins and Anti-toxins.

February 20; Professor William Morris Davis, Cambridge, Mass., Human Responses to Geographical Environment.

March 19; Professor G. R. Mansfield, Recent Work of the U. S. Geological Survey in Southeast Idaho.

April 23; Dean J. F. Hayford, Geodetic Surveys.

May 21; Mr. E. J. Moulton, The Theoretical Shape of the Earth.

The list of elections to membership follows:

Arthur I. Kendall, Ph.D., Dr.P.H., Professor of Bacteriology.

Publications: about 35 papers on bacteriology and related topics in various medical journals. Other papers now in press.

Alexander Alfred Day, M.D., Instructor in Bacteriology, Associated with Dr. Kendall in previous publications and current researches.

Albert Ferdinand Boretti, M.D., Instructor in Pathology. Recently accepted Chair of Pathology in Marquette University Medical School. Elected on basis of unpublished work in Northwestern University Medical School.

Herbert S. Philbrick, Professor of Mechanical Engineering
Scientific Management, World of Today, Oct., 1911.

C. Herbert Jones, graduate student.

A problem in the Dynamics of Rotation. Thesis for M.A.

Siegel A. Buckborough, graduate student.

The Action of Hydrogen Peroxide upon Maltose. Thesis for Ph.D.

Ralph A. Crumb, graduate student.

The Electrical Conductance of Non-aqueous Solutions. Research in progress.

Thermal Conductivity of Concrete at Low Temperatures.

Fred L. Kerr, undergraduate member.

Proficiency and Promise in Mathematics.

Helen Skewes, undergraduate member.

Proficiency and Promise in Geology. Fellow in Geology, 1913-14.

The meetings of the chapter have been well attended and the year has been more than usually successful.

G. R. MANSFIELD,
Corresponding Secretary.

THE COLORADO CHAPTER

The University of Colorado chapter has held four meetings during the year, each meeting combining a business meeting and a scientific program. Ten scientific papers have been presented.

Our annual initiation of new members and initiation banquet was held this year on May 10. We were fortunate on this occasion in having with us a number of Sigma Xi members from Denver and from the Colorado Agricultural College at Fort Collins. The following new members were initiated into the chapter:

Dr. Robert Levy, faculty member.

Numerous papers in medical journals of U. S. A.

Lynn Ruliff Leonard, faculty member.

Electric Transmission Investigation. Thesis for M.A.

George Newton Rohwer, faculty member.

Contribution to Chemistry of Tungsten. To be published later.

Carl Mathias Duff, faculty member.

Thermal Conductivity of Concrete at Low Temperatures.

Thesis for M.A.

John Dudley Skinner, graduate (Yale, '95).

Improvements in Mining Machinery for Coal Mines.

Galister Herod Ashley, undergraduate.

Comparison of Ozone with Sulphur Dioxide as a Disinfectant.

To be published soon.

George Harmon Eveland, undergraduate.

Electric Transmission Investigation. Senior thesis.

Henry Alfred Doerner, undergraduate.

An attempt to Prepare a Soluble Phosphate from Phosphate Rock. Senior thesis.

James Robert Patrick Kettle, undergraduate.

Design of Stringers for Rail Road Bridges. Senior thesis.

Harry David McKinney, undergraduate.

Theory and Operation of Electrical Measuring Instruments.
Senior thesis.

Arthur Lathrup Sawyer, undergraduate.

Investigation of Road Materials. Senior thesis.

John Temple Hall, undergraduate.

Breakdown Tests on Insulating Materials. Senior thesis.

THE OHIO CHAPTER.

The particular kind of activity for the encouragement of research, other than simple existence itself, which has been under way in the Ohio Chapter for a number of years, has been the maintaining of a series of public lectures of high quality. The Ohio State University itself until this year has never made any official provision for general lectures of public or University interest. Our Chapter has therefore seized the opportunity of performing this function, and with such success that Sigma Xi has but to announce a lecture be the topic ever so specialized and a capacity audience is assured. Thanks to the good work of earlier officers of the Chapter this reputation has been extended into the city of Columbus itself as well as throughout University circles. This resulted in the J. C. Campbell Lecture Foundation which lasted up until year before last. For that year only the cost of the lectures was borne by an anonymous member of the local chapter. The problem, therefore, of the outgoing officers of the Chapter was the maintaining of the high standard of these lectures without exceeding the means of the Chapter. In this they believe they have been successful, thanks to the activity of the retiring President, Dean White. The usual series of four lectures was arranged as follows:

Professor C. E. Sherman, Head of the Department of Civil Engineering, Ohio State University and the Ohio Co-operative Topographic Survey.

Subject: The Ohio Canal System and Its Future.

Professor A. W. Gilbert, of Cornell University.

Subject: The Method and Scope of Genetics.

Professor Dayton C. Miller, Case School of Applied Science.

Subject: The Photographing and Analyzing of Sound Waves.

E. C. Schroeder, M. V. D. Pathologist, Bureau of Animal Industry,
U. S. Dept. of Agriculture.

Subject: The Relation of Animal to Human Tuberculosis.

The lecture by Professor Sherman was omitted because of his absence in the service of the state for a month at the time the lecture was scheduled. So this year the custom of having one of the lectures a local man was broken. The other lectures however were presented before the University under our auspices and in the case of Professor Gilbert's lecture jointly with the Ohio Plant Breeders' Association.

The seed sown, of thus presenting, in a formal manner to the student body and the instructional force, the results of investigations under way on the campus and by the foremost investigators from elsewhere, has borne fruit this year in the establishment by our College of Engineering under direction of Dean Edward Orton, Jr., is a series of public lectures of general engineering interest by men from outside as well as from the University staff. This was followed a little later by the adoption of the idea by the College of Arts for the broadening of the point of view of its students and now the University itself is starting a similar project especially for the benefit of the general public. Our Chapter, however, will not give up entirely, at least, the furnishing of a few high class scientific lectures until these new projects have become firmly established University customs.

The total active membership of the Chapter is ninety-four and of these four are on leave of absence from the University. Four meetings for the transaction of business were held during the past academic year:—the annual Fall meeting for election of members; two meetings in the early spring for the annual spring elections to membership, and the annual meeting in May for the election of new officers and the introduction of the newly elected members followed by a light collation at the Ohio Union.

It is rare that anyone is elected to membership at the Fall meeting, it being provided in the By-Laws that only members of the instructional force of at least one year's residence at the University and students of most unusual attainment shall be considered at that time. At the annual election in the spring both undergraduate and graduate students are voted upon.

Instructors are elected upon the basis of research accomplished and published, or engineering achievements, together with such implied assurance of continued interest in research as can be judged from actual productiveness in the immediate past. Graduate

students are elected upon the basis of the implied promise of future interest in research as far as that can be judged from progress in graduate studies and having actually shown ability in research in the prosecution of a graduate thesis or its equivalent. The gradual process of evolution which has arrived at the above ideals of election at Ohio State have not, however, operated long enough to make us a unit in the matter of undergraduate elections.

The ideals of our By-Laws are probably high enough for we take the Constitution of the Society rather literally and enforcement has in general been sufficiently rigid but interpretation by the individual University departments is not yet a matter of sufficient uniformity. Suggestions by the retiring officers of the Chapter toward a solution of this problem were presented at the annual meeting in April, but were unacted upon. It is evident however that the matter will not be allowed to rest as it is, for the incoming President has been responsible for much of the progress this Chapter made a number of years ago away from a too loose construction of eligibility ideals. Our undergraduates are elected upon the basis of promise of research ability and interest, as shown by their past scholastic record and the opinion of their nominators as to their promise.

The officers for the coming year will be found in the list (p. 84). The Chapter elected as Nominating Committee: The President, Vice President, Secretary, James R. Withrow, and D. J. Demorest.

The following list of persons was elected by the local chapter in the spring of 1912, and are included in this report to link up the list in the Quarter Century History with the elections of the present year:

Paddock, Professor Wendall, M. S., Faculty Member, Horticulture Department.

Numerous papers on horticultural topics.

McCall, Professor A. G., B. S. Faculty Member.

Various Publications on Soil Physics.

Ruth, Eugene, B. S. Graduate student in Agricultural Chemistry.

Composition of Sugar Beets During the Growing Season.

McAvoy, Blanche, B. A. Graduate student in Botany.

The Reduction Division in Fuchsia.

Conger, Allen C., B. A. Graduate Student in Zoology.

The Differentiation of the Lateral Lines in *Lepidosteus Osseus*.

UNDERGRADUATE STUDENTS

Cameron, Hazel C.	College of Agriculture
Clevender, Clinton B.	College of Agriculture
Melchers, Leo	Horticulture
Phillips, Thomas G.	College of Agriculture
Taylor, Aaron E.	Forestry
Brain, Charles K.	Zoology
Chapman, A. K.	Physics
Fulton, Bentley B.	Zoology
Kostir, Wencil J.	Zoology
Nathanson, J. B.	Physics
Smith, A. W.	Physics
Clare, R. L.	Ceramic Engineering
Body for Inverted Mantle Rings.	
Potts, Amos P.	Ceramic Engineering
Construction of an Electric Furnace for Determination of Coefficient of Expansion.	
Gordon, C. S.	Electrical Engineering
Test of the Wagner Single Phase, Unity Power Factor Motor.	
Menke, O. H.	Electrical Engineering
The Small Single Phase Power Motor.	
Popp, C. M.	Electrical Engineering
Construction and Test of High Tension High Frequency Transformer and Condenser.	
Kromer, Edward	Civil Engineering
An Investigation of the Stresses in a Railroad Bridge.	
McCoy, E. W.	Civil Engineering
Same topic.	
Rosch, A. T.	Civil Engineering
Abolishing of Grade Crossings of the Norfolk and Western Railway in Columbus, Ohio.	
Knollman, E. P.	Civil Engineering
Same topic	
Lee, Hugh B.	Mine Engineering
An Investigation of the Handling and Treatment of a Low Grade Gold Ore.	
The meeting of December 12, 1912, resulted in the election of William J. McCaughey, Ph. D., Assistant Professor of Mineralogy.	
The Solvent Effect of Ferric and Cupric Salt Solution Upon Gold. Journal American Chemical Society, vol. 31, p. 1261.	
Apatite and Spodiosite. With F. K. Cameron, Journal Physical Chemistry, 1911, p. 463. And many others.	

The meeting of March 20, 1913, resulted in the election of the following:

- W. E. Gatewood, B. A. Graduate Student in Bacteriology.
The Chemo-Therapy of Some Organic Salts of Copper.
- R. L. Stehle, B. A. Graduate Student in Chemistry.
A Study of the Action Substituted Hydrazines Upon
Benzo Quinones.
- H. D. Holler, B. A. Graduate Student in Chemistry.
Electrolytic Copper Addition Agents.
- S. W. Bilsing, B. A., B. S. Graduate Student in Zoology.
Quantitative Studies in the Food of Spiders.
- Esther Faville, B. S. Graduate Student in Zoology.
Adaptions for Aquatic Life in Insects.
- Osborne, Herbert, Jr., M. S. Graduate Student in Zoology.
The Hibernation of Insects.
The Hemipterous Genus, Geocoris.

UNDERGRADUATES

- Latterner, S. W. Architecture
Design of a Residence for the Governor of Ohio.
- Salter, R. M. Agricultural Chemistry
- Salter, F. J. Agricultural Chemistry
- Richardson, Josephine Agricultural Chemistry
- Humphrey, Lillian E. Botany
The Ohio Dogbanes. The Ohio Naturalist 13:78.
- Gormley, Rose Botany
The Ohio Violets. The Ohio Naturalist, 13:56
Ohio Rosaceae
- Schory, V. S. Ceramic Engineering
Matte Glazes Containing Boron.
- Wilson, H. Ceramic Engineering
Deformation Action of Feldspar-Kaolin Mixture.
- Case, H. N. Chemical Engineering
Electrolysis of Cyanide Solutions.
- Johnson, Theo. S., B. S. C. E.
Comparative Design of Circular and Rectangular Imhoff
Tanks.
- Logue, Glenn R. C. E.
An Investigation of the Distribution of Loads Through a
Reinforced Concrete Slab.
- Spidel, R. H. H. C. E.
An Investigation of the Distribution of Loads Through a
Reinforced Concrete Slab.

- Farmer, T. O. E. E.
An investigation of Corona Loss on a Thousand Foot Span.
- Arndt, R. S. E. E.
Same subject
- Kueckle, T. F. E. E.
Design and Construction of Electric Action for Pipe Organs.
- Calland, J. W. Forestry.
The Natural Reproduction of the Lodgepole Pine.
- Tonkin, Ellsworth Mechanical Engineering
Tests of a Lubricant Testing Machine.
- Smith, E. C. Metallurgy
Physical and Chemical Requirements of Brick for Blast Furnace Lining.
- Lake, W. W. Pharmacy
An Investigation of Methods for the Examination of Medicinal Substances.
- Mary Storer Zoology.
- JAMES R. WITHROW, Secretary.

THE CORNELL CHAPTER

It is the policy of the Chapter to invite the public to all lectures and demonstrations. Such public meetings are in charge of a standing committee, consisting of the president, *ex-officio*, and three elective members, whose duty it is to prepare a program for the year. The following list of lectures, given during the past year, will indicate the character of the chapter's activities in this direction.

- December 16, 1912. Evolution and Heredity by Prof. Simon H. Gage, of Cornell University.
- February 10, 1913. The Leading Characteristics of the Tides by Dr. R. A. Harris, of the Coast and Geodetic Survey.
- February 24, 1913. Ferments and Enzymes, by Prof. Andrew Hunter of Cornell University.
- March 31, 1913. The Effect of Impact on Bridges, by Prof. C. L. Crandall, of Cornell University.
- April 14, 1913. The Miner and the Federal Government, by Dr. J. A. Holmes, Director of the U. S. Bureau of Mines.
- May 5, 1913. Some Factors Which Determine Sex, by Dr. Oscar Riddle, of the Carnegie Institution.

May 10, 1913. Some Developments in Color Printing and in Color Photography, by Prof. G. S. Moler, of Cornell University.

May 17, 1913. The Automobile as a Result of Investigation and Research, by Prof. R. C. Carpenter, President of the Chapter.

May 31, 1913. Some Achievements of Modern Surgery, and Their Relation to the Pure Sciences, by Dr. M. B. Tinker, of Ithaca, N. Y.

The Chapter roll on April 1st, 1913, contained 155 active and 911 alumni members.

The following were elected to membership on May 10, 1913; each name is followed by the position held and last by the name of the department nominating.

MEMBERS OF THE FACULTY OF CORNELL UNIVERSITY (5)

Arthur J. Eames, B.A., D.Sc., Instructor in Botany, Botany.

James Nathan Frost, D.V.M., Instructor in Vet. Surgery, Dept. Surg. and Obstet., Vet. College.

Kenneth Bertrand Turner, C.E., M.C.E., Asst. Prof. Hydraulics, Civil Engineering.

Harry Porter Welde, Ph.B., Ph.D., Asst. Prof. of Psychology, Psychology.

Stephen Remington Wing, M.E., Instructor in Sibley, Sibley College.

GRADUATE STUDENTS (47)

Edward Riley Allen, B.S. Agr., Scholar in Chemistry, Chemistry.

Anders Knutson Angstrom, B.A., M.S., Fellow in Physics, Physics.

Jacob A. Badertscher, Ph.B., Ph.M., Instr. in Histol. and Embryol, Zoology and also by B. F. Kingsbury et al.

Elmer Eugene Barker, A.B., Assistant in Plant Breeding, Plant Breeding.

Forest Milo Blodget, B.S. in Agr., Fellow in Plant Pathology, Plant Pathology.

Edwin Garrigues Boring, M.E., A.M., Assistant in Psychology, Psychology and Physiology.

Jean Broadhurst, B.S., A.M. Path. & Bact. (Vet.), Physiol. (Med.)

Henry John Broderson, A.B., M.A., Assistant in Chemistry, Chemistry.

Charles Owen Brown, B.S., M.A., Assistant in Chemistry, Chemistry.

Oliver Elsworth Buckley, B.Sc., Instructor in Physics, Physics.

Karl M. Dallenbach, A.B., A.M., Psychology and Education.

Francis Murray Dawson, B.Sc. in C.E., Fellow in Civil Engineering, Civil Engineering.

John Randolph DuPriest, B.S. in E.E., Instructor in Sibley, Sibley College.

Ellsworth David Elston, A.B., Asst. in Physical Geography, Physical Geography.

Gail J. Fink, A.B., Asst. in Chemistry, Chemistry.

Jerome Arthur Fried, M.E., Instructor in Sibley, Sibley College.

Kasson Stanford Gibson, A.B. Asst. in Physics, Physics.

- Charles Truman Gregory, B.S. in Agr., Instr. in Plant Pathology, Plant Pathology.
- Lex Ray Hesler, A.B., Instr. in Plant Pathology, Plant Pathology.
- Bascom Britt Higgins, B.S., M.S., Asst. in Botany, Botany.
- Arthur Romaine Hitch, A.B., Asst. in Chemistry, Chemistry.
- Charles William Honess, A.B., Scholar in Geology, Geology.
- Joseph Stanley Hook, A.B., Instr. in Economic Geology, H. Ries, et. al.
- Charles Wallace Hunt, M.E., Fellow in Sibley, Sibley College.
- Thomas Barksdale Hutcheson, B.S., M.S., Plant Breeding.
- Ivan Claude Jagger, B.S. in Agr., Fellow in Plant Pathology, Plant Pathology.
- Robert Andrew Jehle, B.S.A., M.S.A., Fellow in Plant Path. until Oct., 1912, Plant Pathology.
- Nathan Clarke Johnson, M.E., Fellow in Sibley, Sibley College.
- Earle Hesse Kennard, B.A. (Pomona) B.A. (Oxford) Asst. in Physics, Physics.
- Myron A. Lee, M.E., Instructor in Sibley, Sibley College.
- Mary Burdick Lyon, B.A., Asst. in Biology, Entomology.
- Alexander McTaggart, B.S.A., Plant Breeding.
- Thomas Henry Addison Neelin, B.A., Physics.
- Alice Ayr. Noyes, B.A., Scholar in Entomology, Entomology.
- George Adin Osner, B.A., Fellow in Plant Pathology, Plant Pathology.
- José Paez, C.E., Civil Engineering.
- Ephraim Laurence Palmer, A.B., A.M., Asst. in Botany, Botany.
- Emile Louise Platt, B.A., Physiology and Biochem.
- William Howard Rankin, A.B., Instr. in Plant Pathology, Plant Pathology.
- Herbert Byron Reynolds, Sibley College.
- Fred Hoffman Rhodes, A.B., Asst. in Chemistry, Chemistry.
- Frank Elmore Rice, A.B., Instr. in Agr. Chemistry, Chemistry.
- Harold Eaton Riegger, A.B., Fellow in Chemistry, Chemistry.
- Joseph Rosenbaum, B.S. in Agr. Asst. in Plant Pathology, Plant Pathology.
- Christian Alban Ruckmich, A.B., A.M., Instructor in Psychol. Psychology and Education.
- Constantine Demetry Sherbakoff, B.S. in Agr., Fellow in Plant Pathology, Plant Pathology.
- Ransome Evarts Somers, A.B., A.M., Instr. in Economic Geology, Geology.

MEMBERS OF THE CLASS OF 1913 (11)

- Charles Paul Alexander, B.S., Asst. in Farm Course, Entomology.
- Ralph A. Bown, Physics.
- Albert Francis Coutant, B.S., Asst. in Biology, Entomology.
- Nathan Washington Daugherty, B.S. in C.E., Instructor in Civil Engineering. Civil Engineering.
- Peter Andrew vander Meulen, B.Chem., Asst. in Chemistry, Chemistry.
- John Merrill Olin, Chemistry.
- Axel Olsson, Asst. in Paleontology, Geology.
- Roger Williams Parkhurst, Civil Engineering.
- Granville Akers Perkins, A.B., Chemistry.

Walter McMillan Ralph, Asst. in Chemistry, Chemistry.

Henry Ten Hagen, Civil Engineering.

ALUMNI (3)

Henry Thomas Cory, B.M.E., B.C.E., M.C.E., (Cornell, '93), M.M.E., Cornell '96), Civil Engineering.

Lewis Radcliff, A.B. (Cornell, '05) Zoology.

Charles Everett Torrance, M.E. (1906), M.M.E. (1912) Sibley College.

WASHINGTON STATE CHAPTER

The University of Washington Chapter of Sigma Xi has held monthly meetings during the year. At these meetings an endeavor has been made to become acquainted with the research undertaken by the members, to ascertain the research conditions in institutions visited by members during leave of absence or during attendance at conventions, and finally to emphasize the necessity of a better correlation of the sciences if each is to advance as rapidly as possible.

The following have been elected to membership in the Chapter during the year:

Allen F. Carpenter, Faculty member.

Theorem for the Development of a Function as an Infinite Product. *American Journal of Math.*, Jan. 1913.

Bertha May Challis, Resident graduate.

Variations in *Thais Cemellose*. Thesis.

William James Chouinard, senior in Civil Engineering.

Seth Chapin Langdon, Resident graduate.

Relation between the Magnetic Field and the Passive State of Iron. *Jour. Amer. Chem. Soc.*, 35:759.

Effie Isabel Raitt, Faculty member.

Papers on Home Economics. *Home Economics Bulletin*.

Marion Radford, senior.

Edwin J. Saunders, Faculty member.

Climate of the Eastern Part of Puget Sound Basin. Soil survey reports of the Bureau of Soils, U. S. Dept. of Agriculture. Also other publications.

Melvin O. Sylliaasen, Senior.

Milton V. Veldee, Undergraduate.

The Value of *B. sporogenes* as an Indicator of Manural Pollution of Milk.

Irene West, Undergraduate.

Sanford M. Zeller, Resident graduate.

Fleshy wood-destroying Fungi of Western Washington. Thesis.

ROBERT E. ROSE Recording Secretary.